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AUTHOR Seller, Maxine S.
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ABSTRACT

Negative reaction to the theories forwarded in Dr. Edward H. Clarke's 1873 treatise against coeducation, "Sex in Education or A Fair Chance for the Girls," has been largely neglected. The book appeared at a time when conspicuous numbers of women were extending their activities by campaigning for suffrage; working in factories, schools, and medicine; and entering public high schools and universities. Clarke suggested that women who engaged in sustained vigorous mental activity, studying in a "boy's way," risked atrophy of the uterus and ovaries, masculinization, sterility, insanity, even death. Coeducation was seen as impractical since young women should study no more than four hours each day, with a total remission during the menstrual period, a regime which would be emasculating to boys. Critics of "Sex and Education" pointed to Clarke's faulty methodology and lack of statistics. They presented an impressive array of evidence against his theories: case studies, letters from authorities, and data on the health, career patterns, marriage rates, and fertility of women who had attended college. They argued that coeducation promoted healthy, realistic relationships between women and men, was less expensive and more practical than separate education, and had proven effective and beneficial. However, his theories were used in the decades that followed, not only by opponents of coeducation but also by opponents of the extension of women's roles in other areas. Critiques were not widely circulated or reviewed, nor were any printed in more than one edition. (KC)

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Dr. Clarke vs. the "Ladies": Coeducation and Women's

Roles in the 1870's

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Maxine S. Seller

Department of Educational Organization,
Administration and Policy

State University of New York at Buffalo

Buffalo, New York 14260

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Abstract

This paper summarizes Dr. Edward Clarke's Sex in Education (1873), which warned that coeducation destroyed the health and fertility of American women. ~~His~~ ^{The} emphasis, however, is in the ideas of Clarke's critics, most of whom were women. These critics assembled evidence from teachers, professors in women's and coeducational colleges, and women physicians refuting Clarke's conclusions. Their writings included not only an attack on his science and his logic, but also a critique of 19th century sex role socialization, of the early graded public schools, of the "cult of the expert," and of the use of science to support conservative social agendas limiting women's roles. The paper concludes with an assessment of the importance of Clarke's work and that of his critics. Though Clarke was more widely read, his critics are important because their work proves that many women did not passively accept male expert opinion about themselves. They were also important because they called for--and initiated--research about women done by women themselves.

Dr. Clark vs. the "Ladies": Coeducation and Women's
Roles in the 1870's

In 1873 Dr. Edward H. Clarke, prominent Boston physician, Fellow of the American Academy of Arts and Sciences, and member of the Board of Overseers and former professor of medicine at Harvard Medical College, published a treatise against coeducation provocatively titled, Sex in Education, or A Fair Chance for the Girls.¹ In it he warned that women who engaged in sustained vigorous mental activity, studying in "a boy's way," risked atrophy of the uterus and ovaries, masculinization, sterility, insanity, even death. Widely read and reviewed, Clarke's book had an immediate impact on women's education. Frightened parents withdrew their daughters from school and young women cut their education short.² At the University of Michigan, which women had attended for three years, two hundred copies of Clarke's treatise were sold in a single day; the local bookseller predicted that "the book bids fair to nip coeducation in the bud."³ M. Carey Thomas, first president of Bryn Mawr College, remembered that "we were haunted in those days by the clanging chains of that gloomy little spectre, Dr. Edward H. Clarke's Sex in Education."⁴

Clarke's book went through nineteen editions, two in little more than a week, and affected higher education for women well into the twentieth century.⁵ This paper will focus on the controversy that surrounded the book in the year after its publication, 1873-1874. It will

examine the setting in which Clarke wrote and summarize the book, an important document in the now well researched nineteenth century proscriptive literature for women.⁶ The main emphasis of the paper, however, will be upon the relatively neglected views of Clarke's opponents. In the year following the appearance of Sex and Education, women (and a few men) published numerous reviews and articles and four books refuting it. The existence of this literature demonstrates that, at least in this case, many nineteenth century women did not passively accept what "experts" said about them. Rather, they evaluated the experts' advice in the light of their own experience and aspirations and used it as a stimulus to create their own knowledge. In doing so, they raised important questions (and provide the historian with important insights) about the education and socialization of nineteenth century women and about the relationship between the new scientific knowledge and social policy.⁷

Clarke's book appeared at a time when the "irrepressible woman-question" (as he called it) was prominent in the national consciousness. In the early 1870's, conspicuous numbers of women were extending their activities beyond the traditional limits of domesticity and "good works." Campaigns for women's suffrage were being waged nationwide. Women were working in factories, in schools, (women teachers outnumbered men,) and, increasingly, in Clarke's own profession, medicine. As students women were conspicuous in the expanding public high schools (where they would outnumber men by the end of the decade) and in the new land grant colleges and state universities and were knocking on the doors of

prestigious male bastions, including Clarke's institution, Harvard Medical College.⁸

The expansion of women's employment and educational activities coincided with a sharp decline in the birthrate of middle class women and an increase in divorce and in the number of women remaining unmarried (especially in New England, where women outnumbered men). The changes aroused anxieties about the blurring of sex roles, the masculinization of women, and "race suicide."⁹ Clarke's treatise reflected these anxieties. Clarke deplored the existence of a new breed of women, lacking in maternal instinct, coarse, Amazonian, "comparable to a sexless class of termites."¹⁰ A Social Darwinist, Clarke feared that American men would be forced to choose wives from the presumably inferior immigrant populations and warned that "the stream of life that is to flow into the future will be Celtic rather than American; . . . it will come from the collieries and not from the peerage."¹¹

More specifically, Clarke's treatise reflected his anxiety about the admission of women to Harvard. Ironically, Clarke had earned the reputation of a liberal on women's issues because of his earlier support, though in qualified fashion, of women physicians in Boston. He had never favored coeducation of medical students, however; and in 1872 as a newly appointed member of the Board of Overseers, he took up the cause of defending Harvard from coeducation. In that year he gave an address at the New England Women's Club opposing the admission of women to Harvard and, indeed, opposing all coeducation for women over the age of fourteen. Sex in Education was an expansion of this lecture.¹²

"The problem of woman's sphere. . . is not to be solved by applying to it abstract principles of right or wrong. Its solution must be obtained from physiology" wrote Clarke in the introduction to Sex in Education, asserting the right of the new authority, the scientist, rather than the older authority, the clergyman or philosopher, to define women's roles.¹³ Clarke began his treatise with the assertion that women were as intelligent as men and that "whatever a woman can do, she has a right to do."¹⁴ It was up to the scientific expert, however, the physician such as himself, to determine what woman could do.

Like many of his colleagues, Clarke believed that the body had a limited amount of "vital force." Women's reproductive systems needed a greater share of this total force than men's, especially during the "critical years," fourteen to twenty, when reproductive functions were being established. Women who put too much vital force into mental activity during these years, especially during their menstrual periods, deprived their reproductive organs. Young women who studied "in a boy's way," that is, rigorously and continuously, risked leucorrhea, amenorrhea, dysmenorrhea, chronic and acute ovaritis, prolapsus uteri, hysteria, and neuralgia--if not during the school years then afterwards--progressing in severe cases to masculinization, sterility, insanity, or death.¹⁵ Clarke admitted that factors such as dress and diet could adversely affect women's health, but he considered sustained mental activity the main culprit.

Clarke supported his thesis by quoting other experts, often anonymous, and by comparing educated American women, seen as frail, nervous and

unable to bear or nurse children, with their less educated foreign counterparts, seen as robust, fertile, and buxom. The latter argument was a powerful one, since the health of American women was a subject of concern to feminists and non-feminists alike.¹⁶ The heart of Clarke's treatise, however, was a series of case studies taken from his medical practice. He described seven women, including an actress, a clerk, and a student reportedly admitted to Vassar College at fourteen (though authorities at Vassar denied admitting anyone so young).¹⁷ All had pursued their educational and vocational goals "in a boy's way," with rigorous and continuous effort and all were eventually stricken with the dread symptoms.

To prevent illness, sterility, and race suicide, Clarke maintained, young women should study no more than four hours each day, with a total "remission" from study (and exercise) during the menstrual period. Since such a regime would be emasculating to boys, coeducation was impractical if not impossible. A system of coeducation at Harvard suitable to both men and women would be prohibitively expensive, Clarke concluded, archly suggesting that those who favored the experiment should "put their hands in their pockets and produce a couple of millions."¹⁸

Although Clarke focused on education, he applied his theory more broadly. He praised an employer, for example, who gave women workers a monthly vacation during the menstrual period and urged every woman to "let her whole education and life be guided by the divine requirements of her system."¹⁹ Clarke defined all women by their reproductive function--

a woman who did not marry and have children was unhealthy and unnatural. Mental activity was in conflict with reproductive activity; therefore, mental activity must be restricted. Not surprisingly, Clarke's book has been called the "great uterine manifesto of the nineteenth century."²⁰

Opposition to Sex and Education was immediate and widespread. Clarke's critics included anonymous mothers, public and normal school teachers, college professors and administrators, educators such as Mary Tyler Peabody Mann (wife of Horace Mann) and Anna Callender Brackett, feminists and suffragists such as Caroline Dall, Abby W. May, Lucy Stone, and Julia Ward Howe, and at least three women physicians, Anna Manning Comfort, (who coauthored a book with her husband) Mercy B. Jackson, and the well known Mary Putnam Jacobi.²¹

Some of Clarke's most articulate critics belonged to a network of literary, socially active, feminist-oriented women in Boston who were personal friends as well as colleagues in the New England Women's Club, the Association for the Advancement of Women, the New England Suffrage Association, and the Women's Journal.²² The controversy over Clarke's book helped to unite these and other similar-minded women in the East and linked them with women students in the new coeducational universities in the West who requested their help.²³ Despite their common interests Clarke's critics did not always agree, their disparate views reflecting cleavages in the women's movement. Accepting the prevalent nineteenth century view of separate (though not necessarily unequal) spheres, most believed that women, as women, had personal qualities and social duties

not shared by men. A minority, however, drawing on Enlightenment ideology of natural law, considered gender differences insignificant compared to the human capabilities and natural rights shared equally by men and women. (In practice, ideological lines were often blurred, as individuals vacillated between the two positions or embraced both in different contexts.) All agreed, however, that Clarke's theory was demeaning, incorrect, and destructive to their common goal of expanding women's activities and influence.

Critics attacked Clarke's book on the ground that instead of providing "a fair chance for the girls," as the subtitle suggested, it was in fact injurious to their psychological and physical well being. Caroline Dall believed the book so coarse that women who read it must do so "with personal humiliation and dismay."²⁴ An anonymous critic asked, "Can any woman read the book without feeling depressed--crushed by the cosmic law of periodicity thrust upon her that would exempt her from nothing but debar her from higher education. . . .The regime prescribed by the doctor has so few attractions and the reward he offers is so paltry. . . ." The same critic went on to warn that Clarke's gloomy physiology would reinforce imaginary invalidism among girls and women.²⁵ An anonymous mother agreed that Clarke's obsession with rest for young women would do more harm than good. "There is no surer way to destroy the health than to care for nothing beside it."²⁶

Critics insisted that Clarke was not only harmful, he was wrong. Physicians Jacobi and Comfort attacked his "vital force" physiology as antiquated and unsubstantiated. Normal women, they argued, could and did

maintain their usual mental and physical activities during menstruation with no ill effects, and young women were more likely to be injured by emotional excitement than by study.²⁷ Since most women were sexually mature by the age of fourteen, study during Clarke's "critical years," fourteen to twenty, could not abort the development of the reproductive organs.²⁸ The Comforts questioned Clarke's honesty and his motives, noting that he presented his dubious theory to a lay rather than a professional audience. "The careful reader of Sex in Education cannot escape the impression that the author had already reached his views with reference to coeducation. . . through other and altogether different lines of thought before the peculiar argument in the book occurred to him," they suggested.²⁹ Non-physicians concurred. The reason Clarke suddenly discovered disease in American women, Julia Ward Howe observed caustically, "is simply this; some of them wish to enter Harvard College. . ."³⁰

According to virtually all of Clarke's critics, lay women as well as physicians, Sex in Education was bad science. They pointed out that seven case studies were an inadequate base for such sweeping conclusions, and that Clarke's sample was biased toward sickness rather than health. They condemned his reliance on unnamed authorities, the impressionistic nature of much of his evidence, and the lack of statistics and control groups. They noted, for example, that he had no statistics comparing the health of American women educated "in a boy's way" with other women, or with men, nor had he considered differences in social class or geographic region.³¹

Clarke's critics assembled an impressive array of evidence against his theories. They presented case studies of women made well rather than

ill by vigorous mental activity, letters from resident physicians, faculty members, and administrators at coeducational and women's colleges testifying to the health of women students, and statements from directors of insane asylums denying that educated women were prevalent among their inmates. They also assembled data on the health, career patterns, marriage rates, and fertility of women who had attended coeducational colleges over a period of several decades and demonstrated that women's death rates were lower than their male counterparts at at least one of these colleges.³² One critic appealed to theology; surely a benevolent God had given women extra strength for the extra tasks demanded of them. Many appealed to experience and common sense; had not countless women cared for their households and done outside work as well every day of the month, regardless of "periodicity," throughout history, and were they not still doing so?

If American women were in poor health, argued many, the culprit was not education but "regimen," or life style. Building on the health and dress reform movements, in which women were prominent, they pointed to the health hazards of poor diet, tight corsets and heavy skirts, late hours, lack of fresh air and exercise, nervous tension, excessive novel reading, the "secret vice," and contagious acquired from dissipated husbands.³³ Several blamed ill health on what would now be called sex role socialization:

"The little girl not yet in her teens must not run, romp, and roll her hoop; she must play with her dolls in the house, and when she goes out it must be to show her fine spotless dress. . .in her carefully gloved

hand must be a delicate silk parosol; she must not let the sunlight shine on her pale cheeks or it will tan her face and bring out the freckles. This ornamental, delicate child is finally sent to school, where she sickens and fades, and the school secures all the blame."³⁴

Psychological as well as physical factors associated with women's sex roles were identified as contributing to ill health. "Boys have. . . the healthful hope held out to them of being able to pursue their own objects and to choose and follow the business or profession of their choice. Girls have the dispiriting prospect of a secondary and derivative existence, with only so much room allowed them as may not cramp the full sweep of the other sex."³⁵ The exhausting but purposeless "derivative existence" of the middle class "society" women or housewife explained Clarke's observation that women's health often failed after rather than during their school years. "The sense of perplexed disappointment, of baffled intelligence, of unoccupied powers, of blunted aspirations which run through the confidences of girls [who have] 'left school' is enough to create any illness which nervous wear and misery can create."³⁶ Women were made ill by too little rather than by too much mental stimulation.

If schools were bad for the health of young women, argued some, the fault lay with the schools rather than with women's physiology. Several women, including experienced teacher Anna Brackett, criticized the new, graded public schools, anticipating many points made by progressive reformers a generation later. They complained that the school day was too long, that schools were crowded and poorly ventilated, that textbooks

were produced by profit hungry publishers rather than educators, and that teaching was mechanical and dull.³⁷ "It is the lounging, deadening brain work of which we have too much, not the active, vivifying brain work of which we have too little that does injure the system," wrote Brackett.³⁸ Public exhibitions, daily marks and competition for class standings, and lengthy written examinations for promotion at the end of the year were blamed for creating nervous tension in both boys and girls. "It is not work but worry that tires," wrote Brackett.³⁹ Girls were more likely than boys to be injured, however, not because of the special needs of their reproductive systems, but because, unlike boys, they were deprived of outdoor play and exercise and forced into time consuming domestic and social as well as academic responsibilities.⁴⁰

"More elasticity, less pressure, more variable and proportionate stimulus" in education were recommended in the interests of both boys and girls.⁴¹ Suggestions for improvements of special benefit to women included the development of industrialized or cooperative households to minimize domestic work, school credit for girls' specialties such as music, and an elective system allowing choice in the number as well as the selection of courses.⁴² Critics noted that an elective system, flexible attendance policies, and the replacement of daily recitations with testing at specified intervals were already in use in many educational institutions and suggested that such a system would, at little or no expense, make Harvard and other all male institutions suitable for both women and men.⁴³ While some of Clarke's critics felt girls should

receive special education for the tasks of wife and mother that lay ahead, others insisted that schools should prepare women for financial and mental independence rather than for marriage and that "education is to be adapted neither to boys nor to girls, but to individuals."⁴⁴

Unmoved by Clarke's insistence that he acted in their best interests, critics saw his opposition to coeducation as a serious obstacle to all higher education for women. "Co-education and higher education for girls are almost synonymous," wrote Brackett, noting that only one woman's institution, Vassar, was comparable to the better men's colleges.⁴⁵ If women were shut out of the new coeducational land grant colleges and universities as well as the traditional male institutions, they would, in effect, be shut out of higher education altogether. Moreover, if each woman refrained from study during her menstrual periods, as Clarke recommended, systematic group instruction in women's institutions, too, would be impossible.⁴⁶

Clarke's critics devoted considerable energy to defending women's need for higher education. They quoted the conservative argument of President Andrew White of Cornell, that higher education would make women more useful helpers for their husbands, better arbiters of taste, and more prudent distributors of charity.⁴⁷ They also argued that it would enable women, like men, to develop into autonomous persons able to pursue goals and lives of their own choosing.⁴⁸ The health issue raised by Clarke was turned against him; women needed higher education in order to take care of their own health and that of their family.

Coeducation, Clarke's critics argued, promoted healthy, realistic relationships between women and men, was less expensive and more practical than separate education, and, having already been in operation in dozens of institutions for over forty years, had already proven effective and beneficial." The most dedicated opponents of the system [of coeducation] are those who have never tried it or seen it tried; its strongest advocates those who. . . have brought coeducation to the test of daily practice."⁴⁹

Clarke's critics were aware of their disadvantage in trying, in an age that respected the authority of the scientist, to refute Sex in Education. "Every woman who takes up her pen to reject it knows very well that it will penetrate hundreds of households where her protest cannot follow; and Dr. Clarke. . . knows very well that upon the major part of the community our words will fall with no authority, our experience invite no confidence," wrote Dall.⁵⁰ Yet Dall and her colleagues did not hesitate to oppose their experience as educators, mothers, or both to Clarke's and to challenge the validity of his expertise. "Despite Dr. Clarke's prominent position in this community, we do not feel compelled to regard him as the supreme authority on the subject of which he treats," wrote Howe.⁵¹

Grounded in the ideology of separate spheres, women attacked Clarke's book as an intrusion into their domain; the issues he addressed were women's issues and must be left to women to decide.⁵² Reflecting women's resistance to the increasing prominence of men in the formerly female dominated area of women's health care, E. B. Duffy deplored "how readily

women accept what is told them concerning themselves by a man, and a physician at that, even when they know better."⁵² Many of Clarke's critics denied the ability of male physicians to understand and treat women's illnesses and to make judgements on women's intellectual and physical capabilities; hence their repeated demand for women physicians.⁵³ Women physicians would not only have the confidence of their women patients, they would also have access to the personal experience and health care traditions "which are well known among women, but of which men. . . have little knowledge."⁵⁴

Resisting the new cult of the expert, many of Clarke's critics argued for the legitimacy of individual judgement rather than professional expertise, male or female. Brackett pointed out that women were studying physiology and chemistry in the high schools and colleges and therefore had as much access to "the latest researches and discoveries" as physicians. . . .⁵⁵ Moreover, "proper reasoning and searching evidence to draw just conclusions is not limited to any profession."⁵⁵ A. C. Garland pleaded for the autonomy of the informed individual; ". . . every woman conscious of the facts. . . will 'persistently' and reasonably demand that the final decision in regard to her ability to endure mental or physical strain, her power for study and her need for the same, shall rest with herself."⁵⁶

Although the age of science was still relatively young, some of Clarke's critics were clearly aware of the social uses, and abuses, of scientific research. "The public cares little about science, except in so far as its conclusions can be made to intervene in behalf of some moral, religious, and social controversy," wrote Jacobi. "In the present

case, a delicate physiological problem has become as popular as theories in epigenesis, spontaneous generation, or Darwinian evolution, and for an analogous reason. As the latter are expected to decide in the doctrines of natural or revealed religion, so the former is supposed to have a casting vote in regard to the agitating claims of new power to woman."⁵⁷

As feminists, many of Clarke's critics understood that his theories on health and education could be used to thwart the wider movement toward expansion of women's roles. "Sex in Education is a covert blow against the desires and ambitions of women in every direction except a strictly domestic one. The doctor. . . knows if he succeeds in carrying the points which he attempts and convinces the world that woman is a 'sexual' creature alone, subject to and ruled by 'periodic tides,' the battle is won by those who oppose the advancement of women--the doors not only of education but of labor and any kind of physical and intellectual advancement are closed against her. He knows that labor is valued only as it is continuous and reliable, and that if women can be persuaded to become unreliable in principle, there is an end to the competition between the sexes in every department of employment. . . ."⁵⁸

As Clarke's early critics had feared, his medical theories were used in the decades that followed not only by opponents of coeducation, but also by opponents of the extension of women's roles in other areas. Clarke's ideas were incorporated into major textbooks of gynecology and brought into twentieth century educational literature in G. Stanley Hall's

influential treatise, Adolescence.⁵⁹ They were important in a line of conservative, mainly male, research about women that continued into the 1920's, research suggesting that women's physiology interfered with their ability to study and work, and that higher education for women had a negative impact on marriage and motherhood.⁶⁰ This research contributed to the passing of still controversial protective laws for women workers. In education, it contributed to the institution of protective living arrangements for college women, emphasis on physical education and hygiene at women's colleges, and the channeling of young women into separate, often less rigorous academic programs.⁶¹

As Clarke's critics had anticipated, their works, unlike Sex in Education, were not widely circulated or reviewed, nor were any printed in more than one edition. These obscure works are important, to the historian, however, for the information they provide about the education and socialization of nineteenth century women, for their early critique of nineteenth century schools and the cult of the expert, and for their still relevant insights into the relationship between scientific research and social policy. Recognizing the need for women to study women, Clarke's critics initiated a line of research parallel but opposed to that of conservative mainstream males. This research included the Association of Collegiate Alumnae study of women college graduates in 1884, Dr. Celia Mosher's studies of menstruation, and early twentieth century research in the psychology and education of women by academic women such as Marion Talbot and Helen Thompson at the University of Chicago and Leta Stetter Hollingworth

and Willystine Goodsell at Teachers College, Columbia.⁶² By demonstrating women's mental and physical competence, this research provided scientific support for the expansion of higher education for women, both in coeducational and single sex institutions, and for the expansion of women's economic, social, and political roles. The controversy over Sex in Education illustrates the importance for historians of education to explore not only mainstream research about women, but also the parallel, less well known, and often quite different research done by women about themselves.

Notes

1. Edward H. Clarke, M.D. Sex in Education; or, A Fair Chance for the Girls, Boston: James R. Osgood and Company, 1873.
2. George F. Comfort and Mrs. Anna Manning Comfort, M.D., Women's Education and Women's Health, Syracuse: Thomas W. Durston, 1874, viii.
3. Dorothy Gies McGuigan, A Dangerous Experiment: 100 Years of Women at the University of Michigan, Ann Arbor, Center for Continuing Education of Women, 1970, 56.
4. M. Carey Thomas, "Present Tendencies in Women's College and University Education," Educational Review 25 (1908), 68; cited in McGuigan, op. cit. p. 53.
5. Barbara Ehrenreich and Deirdre English, For Her Own Good: 150 Years of the Experts Advice to Women, Garden City: Anchor Books, 127. See also Mary Roth Walsh, Doctors Wanted, No Women Need Apply: Sexual Barriers in the Medical Profession 1835-1975 New Haven: Yale University Press, 1977, 124. According to a February 23, 1983 letter from Dorothy M. Kirk, Rights Administrator of Houghton Mifflin Company, Sex in Education remained in print from 1873 to 1902 or 1903 and a total of 12,790 copies were printed. (J. R. Osgood & Co., Clarke's publisher, was the predecessor of Houghton Mifflin.)
6. For discussions of nineteenth century proscriptive literature for women, see Carroll Smith-Rosenberg and Charles Rosenberg, "The Female Animal: Medical and Biological Views of Woman and Her Role in Nineteenth Century America," Journal of American History, Vol. XL, No. 2 (Sept. 1973), 332-356; G. J. Barker-Benfield, Horrors of the Half-Known Life: Male Attitudes Toward Women in Nineteenth Century America, New York: Harper and Row, 1976; and Ehrenreich and English, op. cit.
7. Articles opposing Clarke appeared immediately in the Boston based Woman's Journal, edited by Lucy Stone. Books refuting him include Comfort and Comfort, op. cit.; Anna Callender Brackett, ed. The Education of American Girls, Considered as a Series of Essays, New York: C. P. Putnam's Sons, 1874; Julia Ward Howe, ed., Sex and Education. A Reply to E. H. Clarke's Sex in Education, Boston: Roberts Brothers, 1874; E. B. Duffy, No Sex in Education, or An Equal Chance for Both Girls and Boys, being a Review of Dr. E. H. Clarke's "Sex in Education," Philadelphia, J. M. Stoddard and Co., 1874. Brackett and Howe include reprints of reviews previously published elsewhere as well as letters from mothers, teachers, physicians, and faculty and administrators from colleges. Criticism of Clarke also appeared in a novel by a woman graduate of the University of Michigan, Olive San Louie Anderson, An American Girl and her Four Years in a Boys' College, New York: D. Appleton and Company, 1878.

8. For a thorough and perceptive discussion of women entering the medical profession and seeking admission to Harvard Medical College, including the impact of these issues on Clarke, see Walsh, op. cit. chapters 2-5. Although healing and midwifery had traditionally been women's occupations, the new importance of credentials for medical practice in the nineteenth century made it necessary for women to have M.D. degrees. See also Sally Schwager, "'Harvard Women'; Efforts at Coeducation, 1875-1900," paper presented at the 1983 annual meeting of the American Educational Research Association in Montreal.
9. The average number of children born to native born married women had fallen from about seven in the eighteenth century to three in the second half of the nineteenth century. See Robert V. Wells, "Women's Lives Transformed: Demographic and Family Patterns in America 1600-1970," in Carol Ruth Berkin and Mary Beth Norton, Women of America: A History, Boston: Houghton Mifflin Company, 18. On divorce, see Elaine Tyler May Great Expectations: Marriage and Divorce in Post-Victorian America, Chicago: University of Chicago Press, 1980. On male sex role anxieties, see Roth, 106-107, 139-146; on mid-nineteenth century fears of race suicide, see John Paul Harper "Be Fruitful and Multiply: Origins of Legal Restrictions on Planned Parenthood in Nineteenth Century America" in Berkin and Norton, op. cit. 246-265.
10. Clarke, op. cit., 93, 140.
11. Ibid., 140.
12. Ibid., preface. For Clarke's earlier support of women doctors, see Walsh, op. cit., 120-123. For Clarke's opposition to Dr. Horatio Storer's condemnation of birth control, see Harper in Berkin and Norton, op. cit., 253-254.
13. Ibid., 12.
14. Ibid., 12.
15. Ibid., 35-55. Among the prominent physicians who shared Clarke's views on women's physiology and, specifically, on menstruation, was Horatio Storer, also of Harvard. Storer's book Female Hygiene, published in 1871, anticipated Clarke's warning that school could injure women's health. See Willystine Goodsell, The Education of Women, New York: the Macmillan Company, 1923, 85.
16. See Catherine Beecher, Letters to the People on Health and Happiness, New York, Harper and Brothers, 1855 for a nineteenth century perspective on women's health. See also Ehrenreich and English, op. cit., 101-140.

17. Letter from Alida C. Avery, resident physician at Vassar College, November 4, 1873, published in Julia Ward Howe, Sex and Education. A Reply to E. H. Clarke's "Sex in Education," Boston: Roberts Brothers, 1894, 192.
18. Clarke, op. cit., 151.
19. Ibid., 45.
20. Ehrenreich and English, op. cit., 127.
21. Information about Howe, Mann, May, Dall, Abbey, Brackett and Putnam can be found in Edward T. James, ed., Notable American Women, (3 vols.), Cambridge: Harvard University Press, 1971.
22. Mary Tyler Peabody Mann and Julia Ward Howe traveled to Europe together with their husbands on a joint honeymoon. Abbey W. May and Howe were co-founders of the New England Women's Club. Howe and Lucy Stone were co-founders of the New England Suffrage Association and editors of the suffrage paper, the Women's Journal, for which Thomas Wentworth Higginson, one of Clarke's few outspoken male critics, wrote.
23. Brackett, op. cit., 390-391.
24. Howe, op. cit., 91.
25. Ibid., 123-124.
26. Brackett, op. cit., 134.
27. Comfort and Comfort, op. cit., 57-59; Mary Putnam Jacobi's article in Brackett, op. cit., 295.
28. Comfort and Comfort, op. cit., 52.
29. Ibid., 59.
30. Howe, op. cit., 23-24.
31. Ibid., articles by Ada Shepard Badger, 75; "C" 120; Caroline Dall, 90; and Thomas Higginson, 37-41. See also Comfort, op. cit., 28.
32. Howe, op. cit., 190-203. Howe prints letters from Alida C. Avery, M. D. of Vassar College; Reverend Olympia Brown of Antioch giving data on marriage, number of children, health, and careers for graduates of Antioch from 1857 to 1873); Reverend C. H. Brighton describing health of women at University of Michigan); unsigned testimony from Lombard University on women's health, marriages, and deaths over six years; and a Professor Fairchild, giving similar information about death rates of male and female graduates of Oberlin since 1841.

Brackett, op. cit., passim. Brackett provides information from Alida C. Avery on women at Vassar, including material on curriculum and discipline as well as health; from Adelia Johnson on women at Oberlin, including quotations from alumnae; from Mary O. Nutting on women's courses and health at Mt. Holyoke, including statistics comparing the death rates with those of comparable men's schools over thirty years; from Lucinda Stone on academic achievement and health of women at Kalamazoo College over 20 years; and from Sarah Dix Hamlin about the attendance, health, and academic activities of women at the University of Michigan.

Duffy, op. cit., 122-136. Duffy includes letters praising the academic achievement and health of women students from Reverend Dr. Hosmer, president of Antioch, President Angill of the University of Michigan, President Magill of Swarthmore, and Professors Cooley and Fairchild of the University of Michigan and Oberlin, respectively.

33. Comfort and Comfort, op. cit., 95-100, 109, 118; Brackett, op. cit., 45-46.
34. Comfort and Comfort, op. cit., 100.
35. Howe, op. cit., 28. See also Duffy, op. cit., 89. Duffy suggested that girls became ill after school because "no career was open to them." Their energies were forced back on themselves so they pined and became invalids because they had nothing else to do.
36. "C," in Howe, op. cit., 137.
37. Brackett, op. cit., 375-376. See also Comfort and Comfort, op. cit., 89 and Ada Shepard Badger in Howe, op. cit., 85.
38. Brackett, Ibid., 87.
39. Ibid., 375-376. See also Comfort and Comfort, op. cit., 85-88, and Howe, op. cit., 60-62.
40. Ibid., 40, 204, 249; articles by "C", by Caroline Dall, and by C. Garland in Howe, respectively, op. cit., 94-95, 122, 184-185.
41. Howe, op. cit., 167.
42. Brackett, op. cit., 249. Brackett quotes and endorses suggestions by Mrs. E. M. King in Contemporary Review, December 1873.
43. Howe, op. cit., article by Thomas Wentworth Higginson, 46-51.
44. Dall, in Brackett, op. cit., 171
45. Brackett, op. cit., 374.

46. Howe, op. cit., article by "C", 115-116; Duffy, op. cit., 115-116; Comfort and Comfort, op. cit., 17.
47. Brackett, op. cit., 392-397. Statement by Andrew D. White, president of Cornell.
48. Ibid., Edna D. Chinay, "A Mother's Thoughts", 120, 142. See also Comfort and Comfort, op. cit., 138.
49. President Magill of Swarthmore College, as quoted in Duffy, op. cit., 136.
50. Dall, in Howe, op. cit., 89.
51. Howe, op. cit., 7-8; Brackett, op. cit., 38. Also in Howe, op. cit., See articles by Mercy Jackson, 161 and A. C. Garland, 1888.
52. Duffy, op. cit., 57.
53. Brackett, op. cit., 388. See also Howe, op. cit., 24; Mercy B. Jackson in Howe, 158; and Duffy, op. cit., 54.
54. Brackett, op. cit., 383.
55. Ibid., 388-389.
56. A. C. Garland, in Howe, op. cit., 188.
57. Jacobi, in Brackett, op. cit., 258.
58. Duffy, op. cit., 117-118.
59. For a discussion of late nineteenth and early twentieth century gynocological literature advocating prolonged rest for young women, see Rosenberg and Rosenberg, op. cit., 340-342. See also Walsh, op. cit., xv and G. Stanley Hall, Adolescence II, New York, 1904, 569-570.
60. This literature is reviewed and critiqued in Goodsell, op. cit., chapters 2-4.
61. See James Azel Jr., M.D. Sex in Industry: A Plea for the Working Girl, Boston: James R. Osgood, 1875. The similarity of the title and argument, as well as the timing of the publication and the identity of the publisher, suggest that this work is linked to that of Clarke's Sex in Education. For medical rationale of protective legislation for working women, see Mueller v. Oregon, 208 U.S. 412 (1908), also Wenham v. State 65 Nebraska 394, (1902) and State v. Buchanan, 29 Washington 602, (1902). For the impact of Clarke's ideas on women's education, see McGuigan, op. cit., 59 and Charlotte Williams Conable, Women at Cornell: The Myth of Equal Education, Ithaca: Cornell University Press, 71-73, 81-83, 99-134.

62. This literature is reviewed in Goodsell, op. cit., ch. 2-4. For an excellent recent discussion of women's educational research at the turn of the century, see Rosalind Rosenberg, "The Academic Prism; The New View of American Women," in Bekin and Norton, op. cit., 318-399 and Rosalind Rosenberg, Beyond Separate Spheres: Intellectual Roots of Modern Feminism, New Haven: Yale University Press, 1982. Marion Talbot, sociologist at the University of Chicago, was the daughter of Emily Talbot, a friend and colleague of Julia Ward Howe, an activist in the attempt to open Harvard to women in the 1870's.